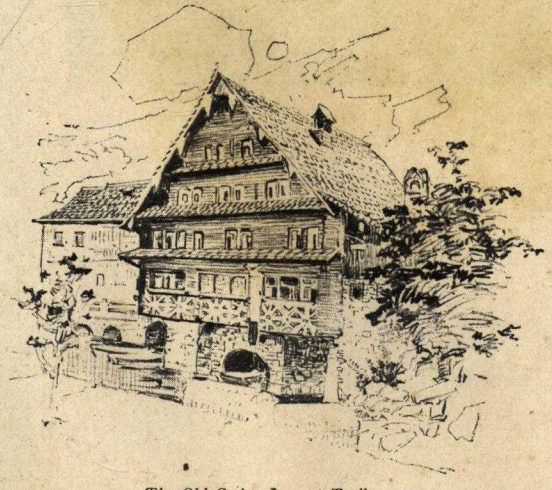
Eric Fleming, B.S., C.E.
Architectural Municipal
Engineer
New Jersey

THE ROOF BEAUTIFUL

"*Consider* the difference between the expressions: beneath my roof, and within my walls, and you will see how important a part of the house the roof must always be to the mind, as well as to the eye."

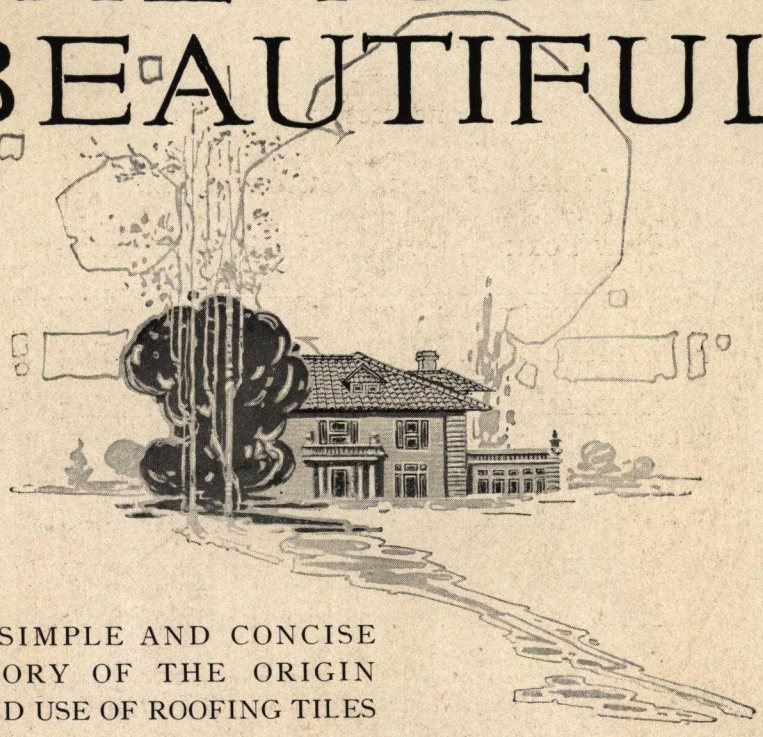
—*Ruskin.*



The Old Swiss Inn at Treib

A Color Combination with
Imperial Spanish Green Tile

THE ROOF BEAUTIFUL



A SIMPLE AND CONCISE
STORY OF THE ORIGIN
AND USE OF ROOFING TILES

LUDOWICI-CELADON COMPANY
CHICAGO, ILLINOIS

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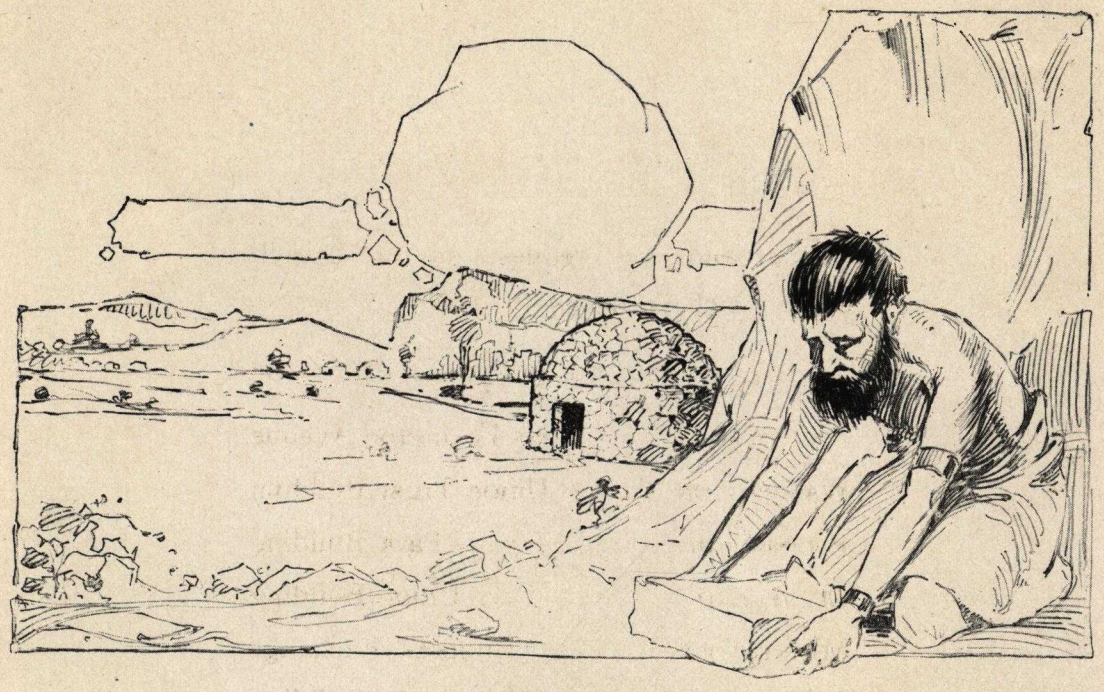
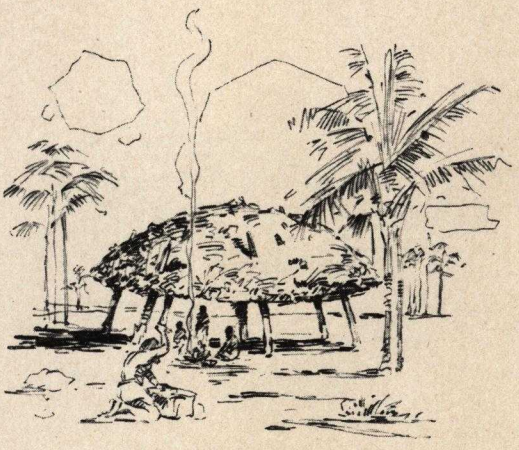
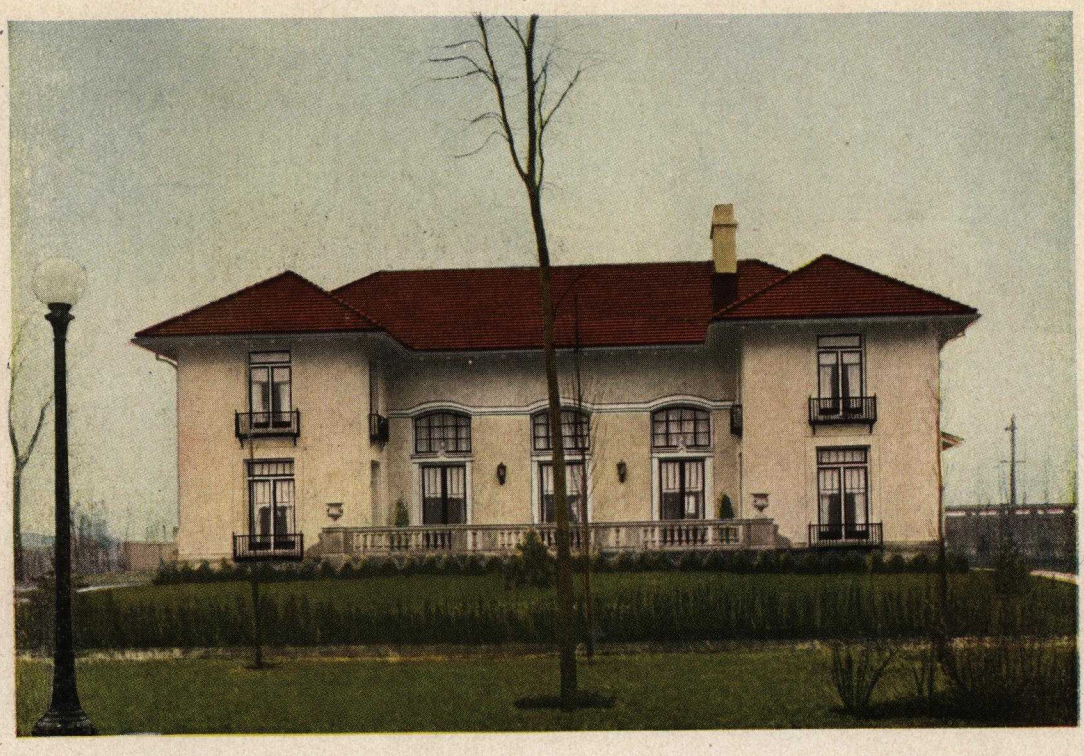


WHEN primitive man abandoned cave life he found he still required a shelter, and hence architecture had its origin in man's need of a roof to protect him from the elements. The first house built for human habitation was nothing but a roof. It was made from branches of trees set in a circle and converging to a point at the top, with leaves for a covering. These arboreal huts were followed by structures similar in form, but strengthened by the use of other materials. These naturally varied, according to the rigor of the climate and the crude materials available. All, however, were types of the sheltering roof, which for ages has symbolized man's sweetest ideal—the home. The first great improvement in hut-making was probably a surrounding embankment of earth or clay. This, as man progressed in handicraft, developed into walls of earth, turf, wood and finally stone. For hundreds of years all human habitations were still of the hut shape and circular in ground plan. It was not until the adoption of the

First—the Roof

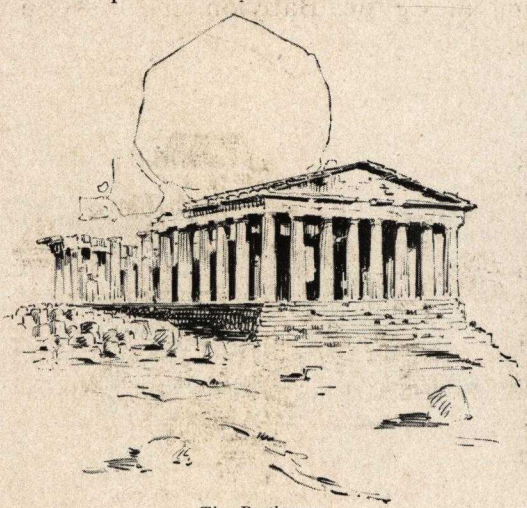


Just a Roof



C. W. Price Residence, Chicago. Imperial Closed Shingle, Red — *C. A. Eckstorm, Chicago, Architect*

angular form that the dwelling house, as we now know it, began to develop. The gable roof was made possible. Its beauty was first shown in the Greek Temple. It attracted the attention of the world and fixed the direction of architectural progress. Thus the importance of the roof in architecture was forever established. Since that period the roof has been given special consideration in all the important epochs of architectural development. Its physical construction and outward appearance have had the best thought of the greatest architects.



The Parthenon

Today the form and material of the roof is regarded as one of the prime essentials of architectural style. This applies not only to the extreme development of the roof idea into the exalted forms of domes, vaults and spires, but to the roof covering of the ordinary dwelling house.

The Origin of Tile

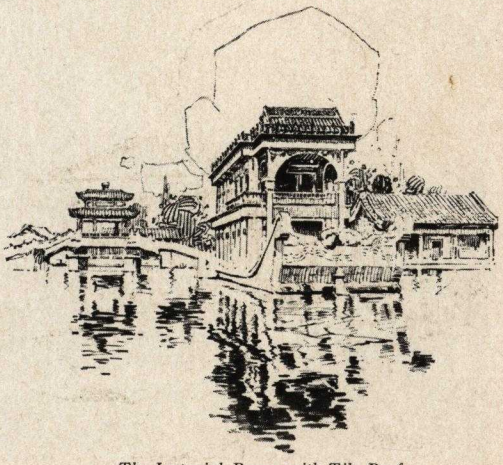
Historians have been unable to determine just when, to supply his necessities, man first began to make use of the

W. J. Fleming Residence, Chicago. Imperial Closed Shingle, Dull Green. *Tallmadge & Watson Chicago, Architects*

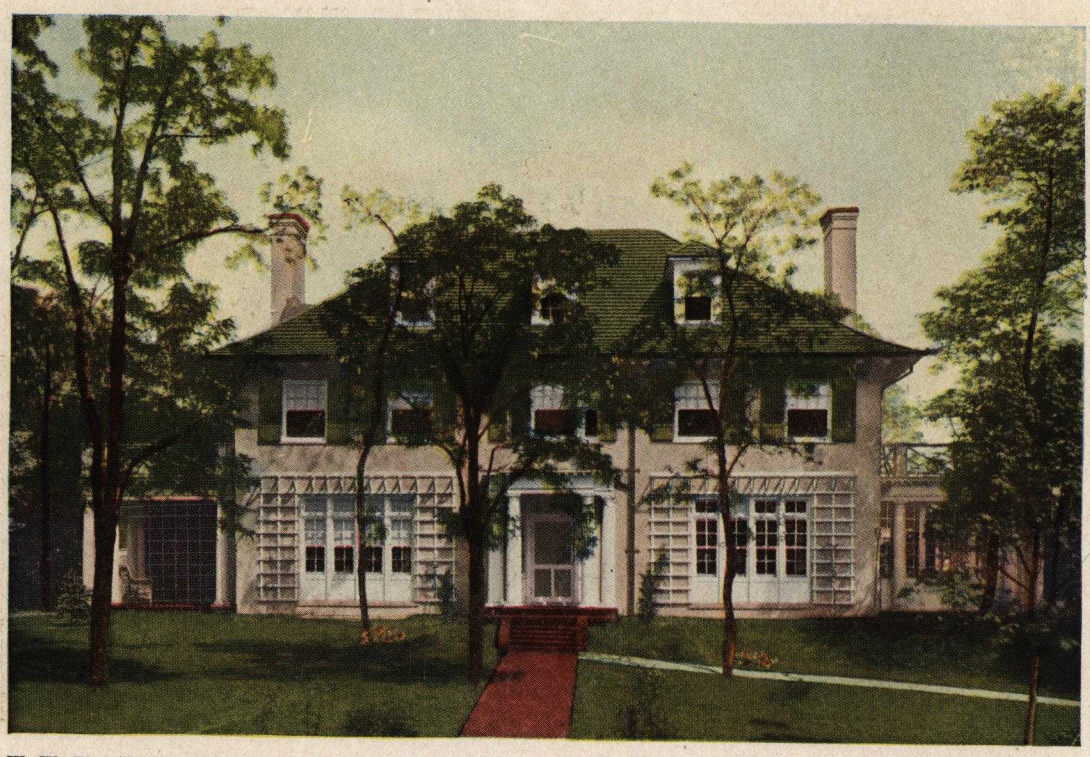
plastic properties of clay. It is certain, however, that tile was made long before historic times. Pieces of pottery, contemporaneous with both the stone and bronze ages, have been discovered. Whether bricks were made before pottery is simply a surmise. It is probable, however, that the first bricks were sun-dried, and likely that tiles or plates of baked clay constituted one of the earliest products of human industry. It is known that stone and tiles, as well as beaten clay, were used for roofing in Egypt, Babylon and Assyria

Classical Types

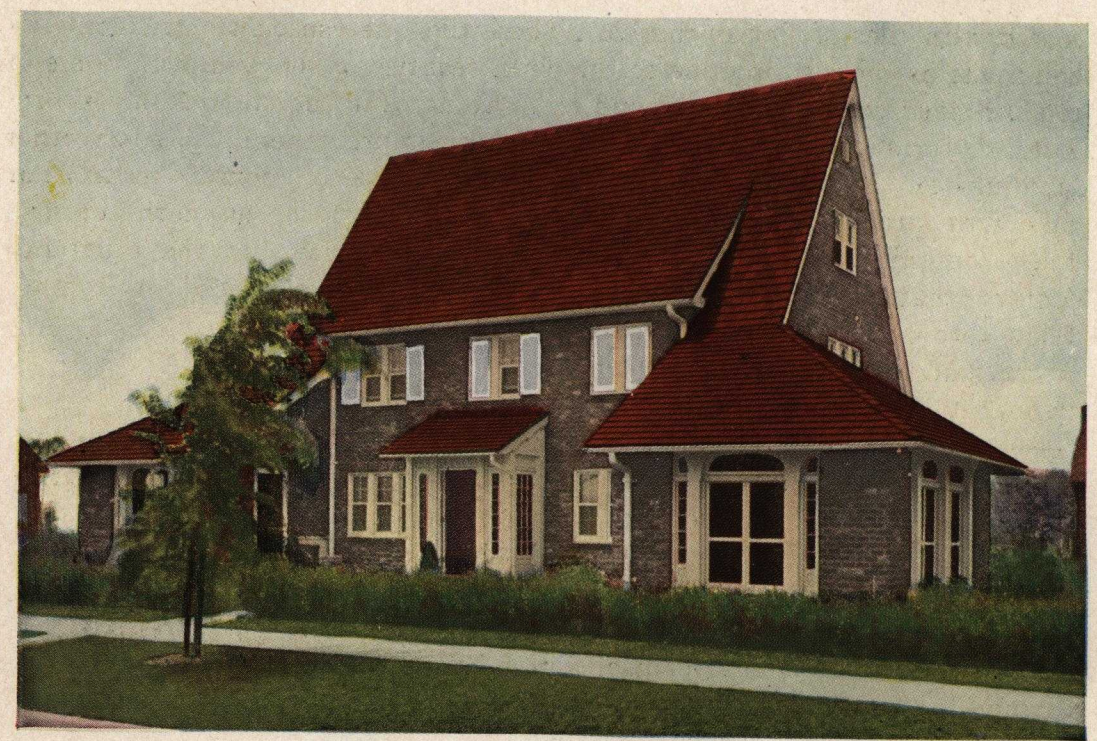
Accurate particulars concerning tiles prior to the Grecian period, however, are not obtainable. The Romans used roofing tiles quite generally in the construction of their temples and palaces. These were in two forms, one of which was termed *tegulae*, from which the word tile is derived. That the importance of the roof was properly appreciated by the Grecian masters is clearly shown. The Temple of Apollo at Bassac, although mainly constructed of limestone, was



The Imperial Barge, with Tile Roof

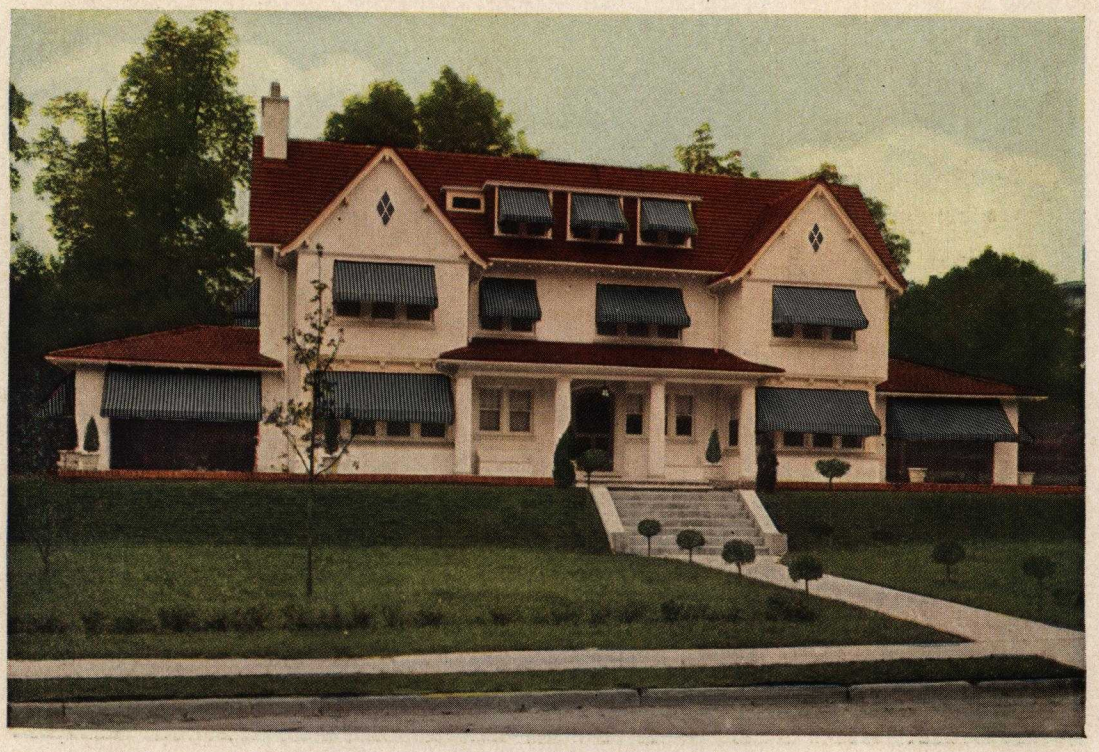


W. W. Elzea Residence, Bronxville, New York. Imperial Closed Shingle, Dull Green *Bates & Howe, New York, Architects*



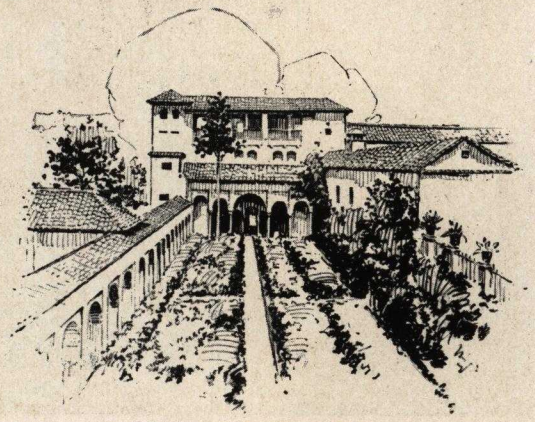
W. T. Bailey's Residence, Forest Hills, L. I.
Imperial Closed Shingle, Red and Fireflashed

Grosvenor Atterbury, New York, Architect

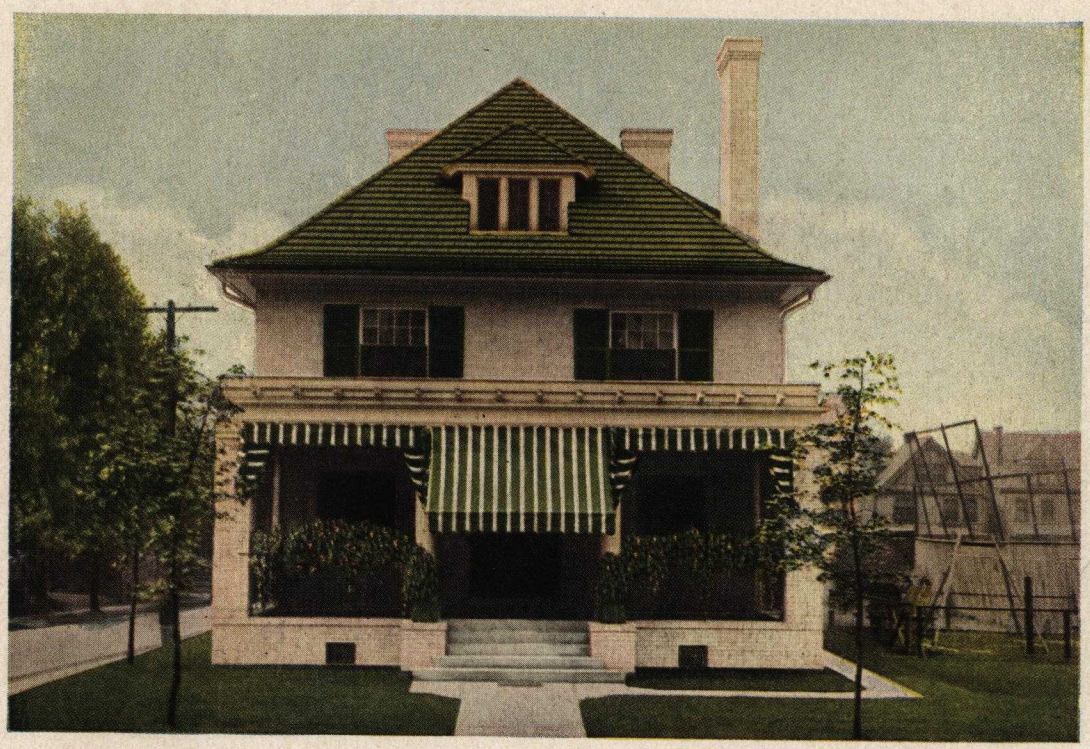


W. P. Moore Residence, Elkins Park, Pa. Imperial Closed Shingle, Red *Heacock & Hokanson, Philadelphia, Architects*

roofed with tiles of Parian marble. These tiles are especially mentioned by historians as constituting one of the chief beauties of the Temple. Some of them in good condition were found by antiquaries in the nineteenth century. Tiles of Terra Cotta, similar in pattern, were quite generally used in other buildings by the ancient Greeks. The Roman style of roofing—rectangular tiles with curved covers—prevailed in Europe until the eleventh century. Then the trapezoid form came into most general use. In the thirteenth century what were known as "Champagne" tiles were introduced into France. They were slightly convex, and instead of the flange or raised rim had a hook to hold them in place. A smaller size, better finished and often enameled, was called "Comte Henri." Roofs of these tiles are still found in the South of France and in Italy. About the same time shell-shaped tiles, with three furrows to carry off the water, were also made. Flemish tiles, still used in Europe, originated in the *fifteenth century*. In 1851 the Geraldini brothers



The Generalife, Southern Spain



R. H. Bartlett Residence, Wilkinsburg, Pa. Imperial Closed Shingle, Dull Green *H. S. Bair, Pittsburgh, Architect*

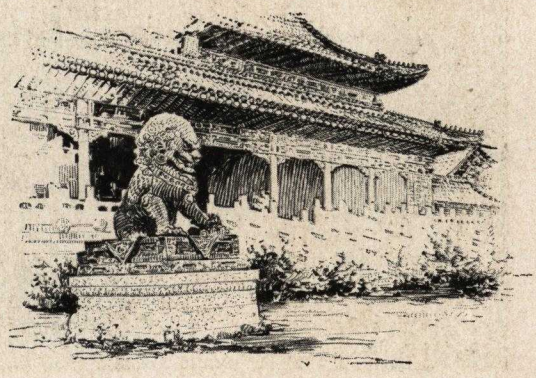
Reed B. Coyle Residence, Pittsburgh, Pa. Imperial Closed Shingle, Red *H. S. Bair, Pittsburgh, Architect*

B. R. Deming Residence, Cleveland, Ohio. Imperial Closed Shingle, Fireflashed *Howell & Thomas, Cleveland, Architects*

invented a machine to make tiles. This had the effect of greatly increasing the industry, as previously all tiles were made by hand. Not only have Terra Cotta tiles been used for centuries in Europe, but also for many ages among Asiatic races. The Mohammedans used them in some of their earliest architecture. In other countries also the striking features of characteristic buildings are largely due to the liberal use of Terra Cotta tiles.

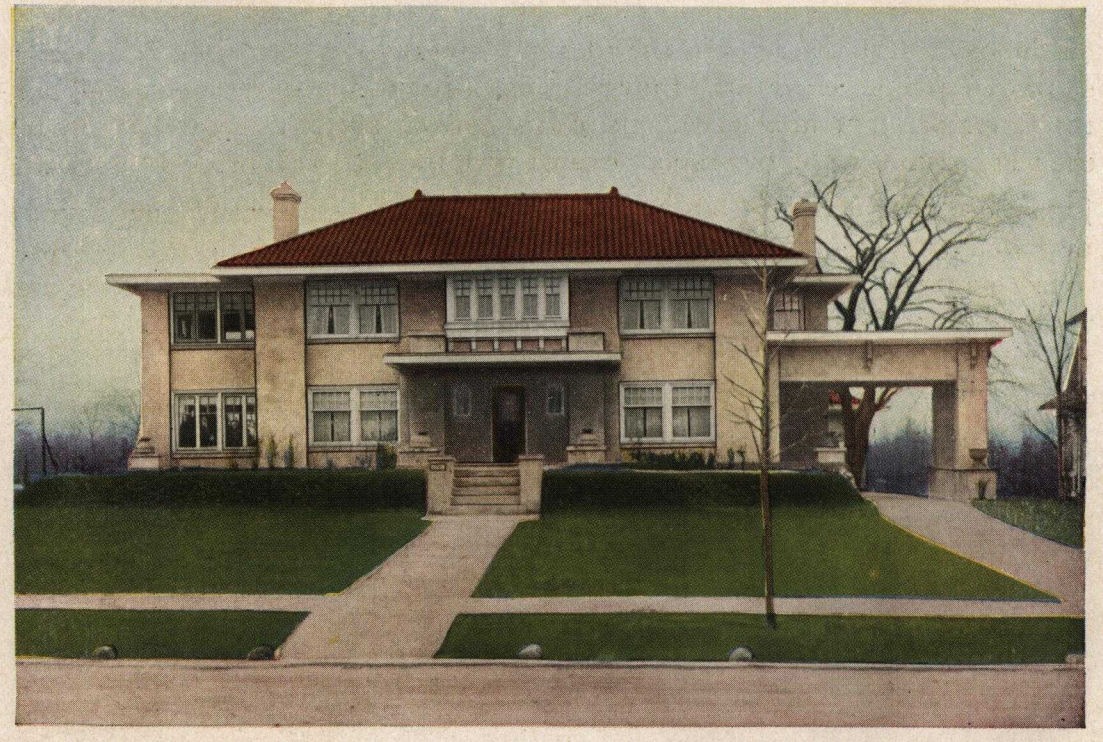
Antiquity of Clay Roofs

It is to the roofs of China, invariably of tile, that the architecture of that country owes its claims to individuality. Chimneys are scarce in the middle kingdom. Thus while the ribs and ridges of the roofs are over-elaborate, they relieve the landscape and please the eye. The dragon, wonderfully worked out in the burned clay, stretches in protecting aggression along the ridge line—his presence not merely an ornamentation but a guardian against the evil spirits which in the Chinese



Audience Hall, Peking, China

G. E. Miller Residence, Cleveland, Ohio *Imperial Closed Shingle, Dull Green* *R. H. Hinsdale, Cleveland, Architect*



F. C. Werk Residence, Cleveland, Ohio *Imperial Spanish, Red* *Matzinger & Jeffrey, Cleveland, Architects*

Dr. R. T. French Residence, Rochester, N. Y. Imperial Spanish, Red *Foote, Headley & Carpenter, Rochester, Architects*

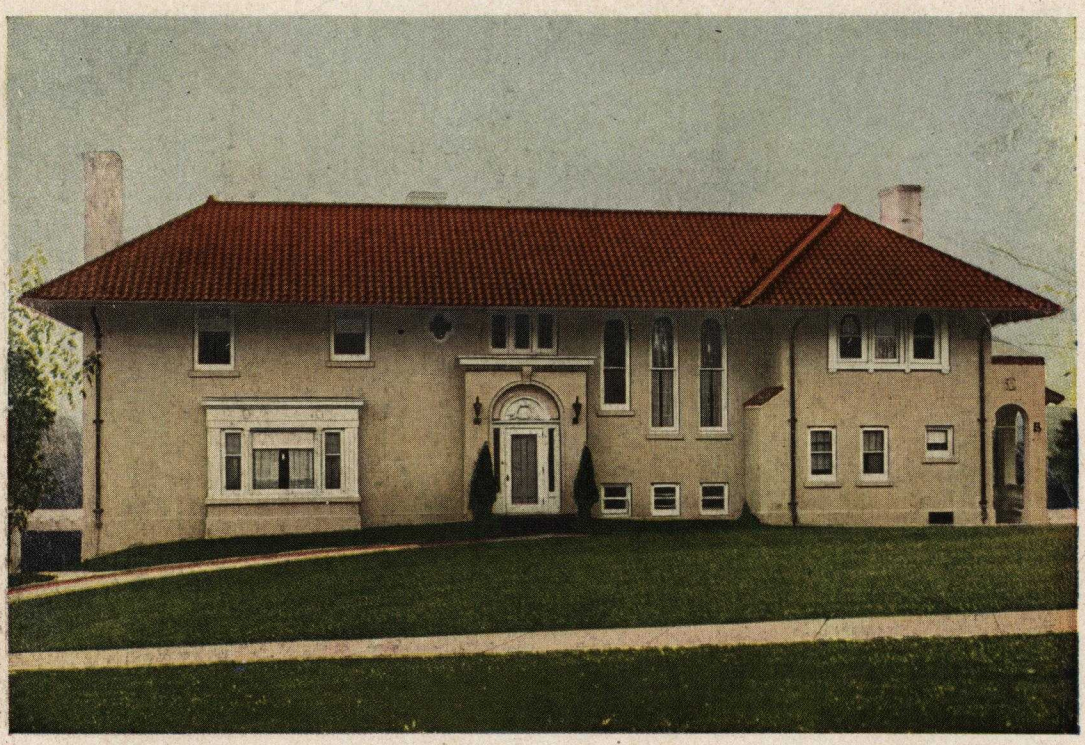
mythology infest the air. In the tiles of Chinese roofs almost every color is employed except yellow—the Imperial color forbidden until recently to all but the Emperor. The famous Temple of Heaven was partly destroyed by fire in the last century. The two roofs, covered with tiles of a rich blue, still remain.

Japan also abounds with elaborate and characteristic examples of tile roofing In the temples especially the roof is always the most artistic feature—the broad overhanging eaves, curved upward and back at the corners, displaying marvelous complications in ornamental treatment.

In Europe and other countries, most of the older forms of tiles were circular or had roll effects. The shingle tile with flat surface is a pattern of later development. Early English tiles, whose origin dates back several hundred years, were of this shape.

The credit for the introduction of roofing tiles into this country is divided between two sources. About the middle

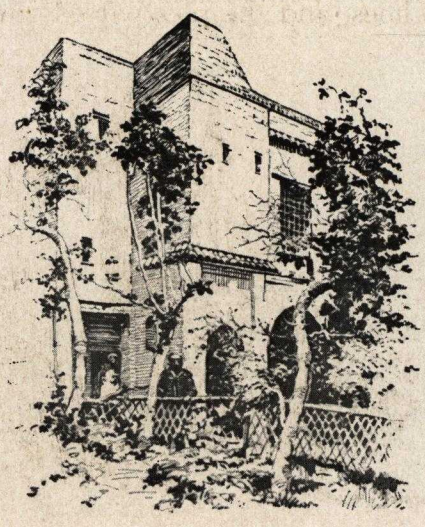
The Western Gate, Seoul, Korea



F. A. Cokefair Residence, Duluth, Minn. Imperial Spanish, Red *F. G. German, Duluth, Architect*

of the eighteenth century is probably the time when Spanish priests brought to the Pacific Coast the knowledge of tile-making. They taught the art to the natives among whom they had come to labor. These tiles were naturally of the Spanish type—two half rolls placed together inversely. They were exceedingly crude in form and largely made by hand. This type of tile came to be known as "Old Mission." The old mission houses on which it was used for roofing are today among the most attractive sights in Southern California. "Old Mission" tile, as made by modern factories, is in the Eastern market today, but on the Coast they are still made in the primitive form. The earliest evidence of tile-making in the Eastern part of the United States was about 1810, when it was attempted in Germantown, Ohio. Later, in 1818, a colony of Germans, members of a communistic society, established themselves in the Tuscarawas Valley, Ohio. They named their town Zoar, from which they

First American Tiles

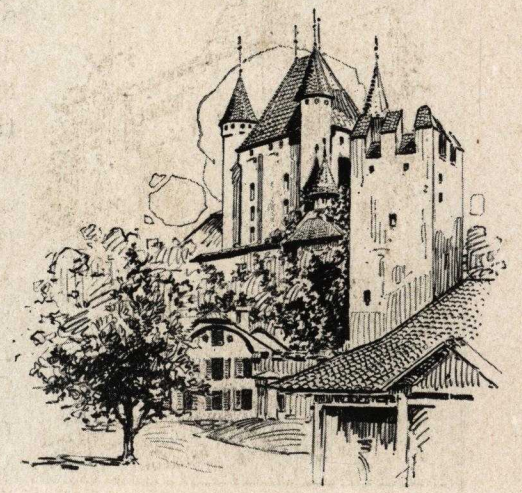


Villa, Fez, Morocco

W. G. Jones Residence, Evanston, Ill. Imperial Closed Shingle, Victorian Green *Holabird & Roche, Chicago Architects*

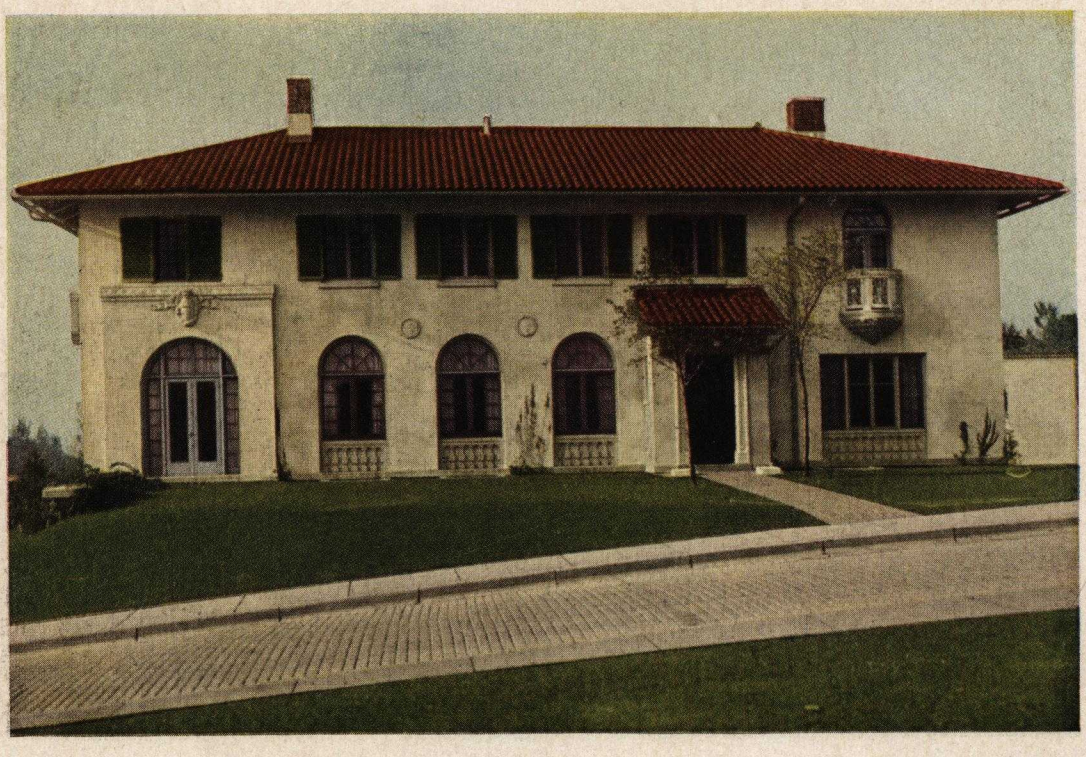
were called Zoarites. They had emigrated from the Fatherland to enjoy, undisturbed, their religious belief. They were familiar with the use of roofing tiles in the Old Country, and at once undertook to make them. The broadaxes brought with them were their only tools save the hoe. With the axe they hewed out pallets. The clay was mixed with hoes, and the tiles patted down by hand upon the pallets. Then they were sun-dried and burned almost to vitrifaction on top of the lime kilns. These tiles were naturally crude in form but were of good quality. They were decorated by the finger marks of the Zoarites, who thus ornamented the surface of the tiles. All the buildings at Zoar were thus roofed. The tiles were hung on wood purlins, and small strips of bark placed beneath at every joint to keep out moisture.

Early Crude Forms



Medieval Switzerland

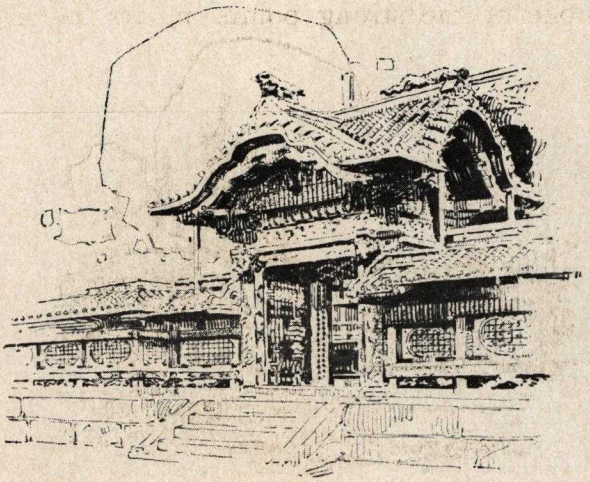
In Zoar, a few years ago, about two carloads of these tiles were collected. They were



C. H. Bagley Residence, Duluth, Minn. Imperial Spanish, Red *F. W. Perkins, Chicago, Architect*

made until 1875, when the first modern American tile plant was established. Others saw the opportunities tile-making offered for industrial success, and new plants sprang up from time to time.

Inventive Yankee genius, soon revolutionized the manufacture and sale in this country. New and more attractive patterns were designed, improved processes discovered, new interlocking devices invented, and an exceedingly attractive variety of colors in glazed effects secured, rivaling the best work of the Chinese. Capitalists became interested and money was liberally subscribed for stock. Best sites for plants were selected and purchased. Large plants were built and up-to-date machinery installed. Cost of production was greatly reduced and the selling price proportionately decreased. A selling force was organized and equipped to solicit the architect and instruct the builder. What the final result was is easily shown.



The Karamon

G. F. Bridge Residence, Evanston, Ill. *Imperial Closed Shingle, Dull Green* *George W. Maher, Chicago, Architect*

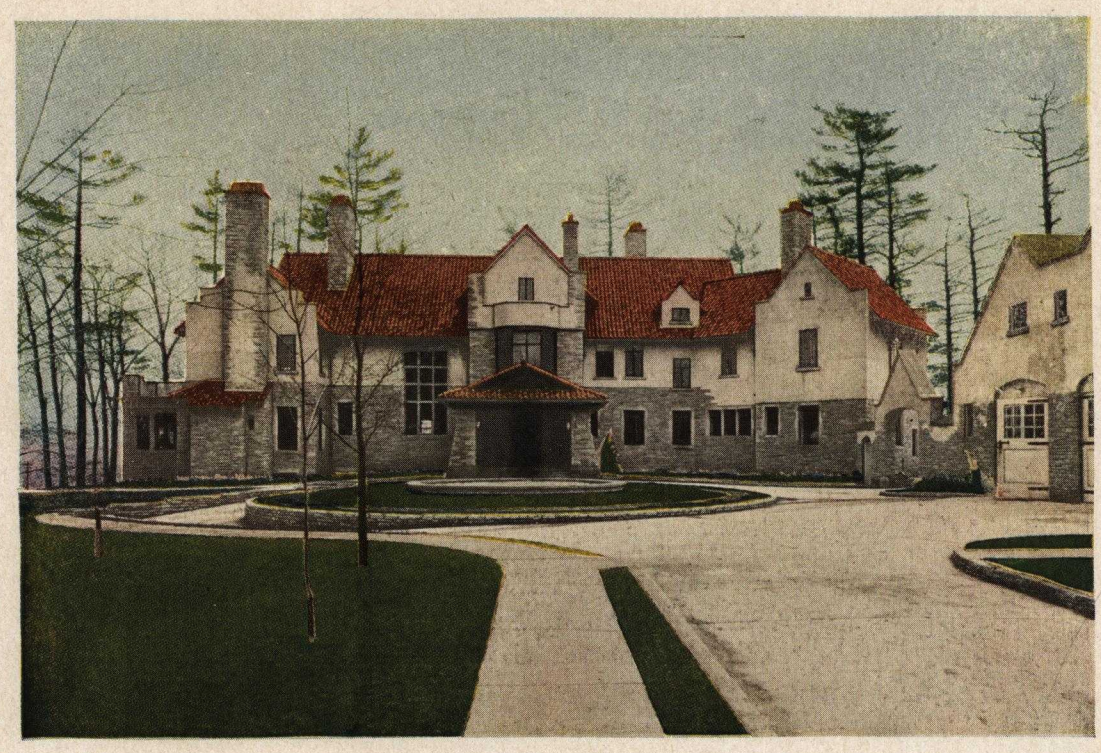
Today Terra Cotta Tiles for Roofing hold first place in the estimation of the leading architects. That is why thousands of American roofs are now beautified and protected by the everlasting Tiles of the Ludowici-Celadon Company.

The character of a building is in the roof, and from the standpoint of architectural beauty, Terra Cotta Tiles have all the advantages. A tile roof can be constructed to harmonize in design and shade with any building. This is one of the strong points in its favor which is being recognized more and more in this country. Leading architects are not only recommending Terra Cotta Tiles as roofing in their plans for clients, but are generally adopting them in the construction of their own beautiful homes.

Roof Defines the Building

In European countries tiles most largely form the roof coverings of homes of the better and middle classes, as any one who has traveled

Peterhof, Petrograd

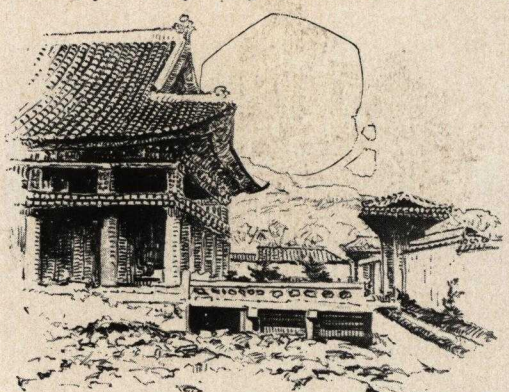


E. J. Lennox Residence, Toronto, Ont. Imperial Spanish, Red and Fireflashed *E. J. Lennox, Toronto, Architect*

as a menace to life, why put such combustible material as wood shingles on the part of a building most exposed to the possibility of flying sparks? Fifty per cent of conflagrations are due to flames communicated from an adjoining building and the wood shingle roof is the best spark-trap known.

The insurance companies have statistics on the facts. They recognize the wonderful fireproof quality of Terra Cotta Tiles and offer a reduced rate of insurance on buildings roofed with them.

Nearly every objection to wood shingles as a roof-covering is applicable to slates, which have still other adverse features. Slates are not fire-proof. Ask the underwriter how the insurance companies regard them in comparison with clay tiles. They are not permanent, though more so than wood shingles. Art and good taste forbid that anyone could regard them as decorative. In this respect, slates are not so effective as wood shingles, because one can so treat wood as to work out a study in color and secure a pleasing picture.

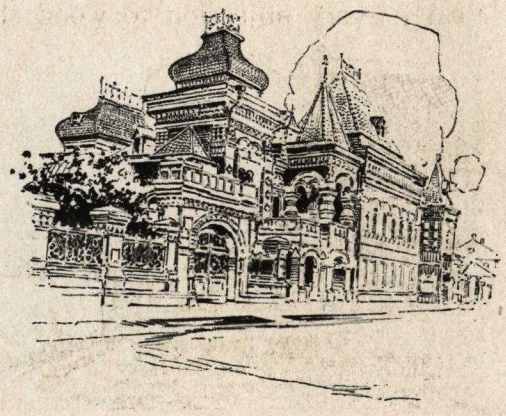


Summer Pavilion, Korea

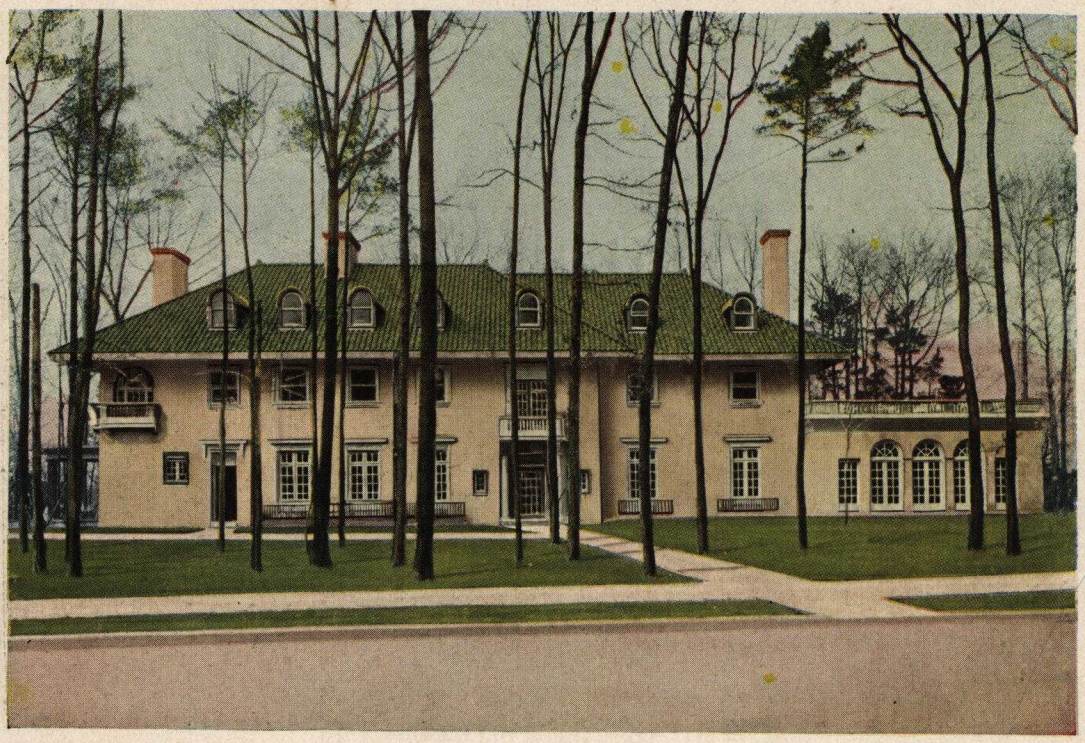
Aaron Younker Residence, Winnetka, Ill. *Imperial Closed Shingle, Dull Green* *A. S. Alschuler, Chicago, Architect*

On the other hand, the usual slates are black, forbidding, cold and gloomy—lowering the sky line, dwarfing the building and effectually spoiling any possible picturesque features in the roof. There is nothing cheerful or noble in a slate roof. It has no refinement, no elegance, no beauty. The slate roof offers an uninviting, flat surface, lifeless in color and showing only a dark, cold mass against the sky line. Slates conduct lightning, and while the sun warps shingles and the wind rips them off, slates are easily broken, and if there is even a slight settlement or vibration, repairs are necessary. Moisture gets under them and during the winter months especially causes them to lift up and break off. When the ice thaws the broken pieces slide out, leaving a defective place in the roof. This may happen every winter with a slate roof, and to keep such a roof in perfect condition, it should be gone over each spring and the broken slates replaced with new ones.

Cheerful Appearance

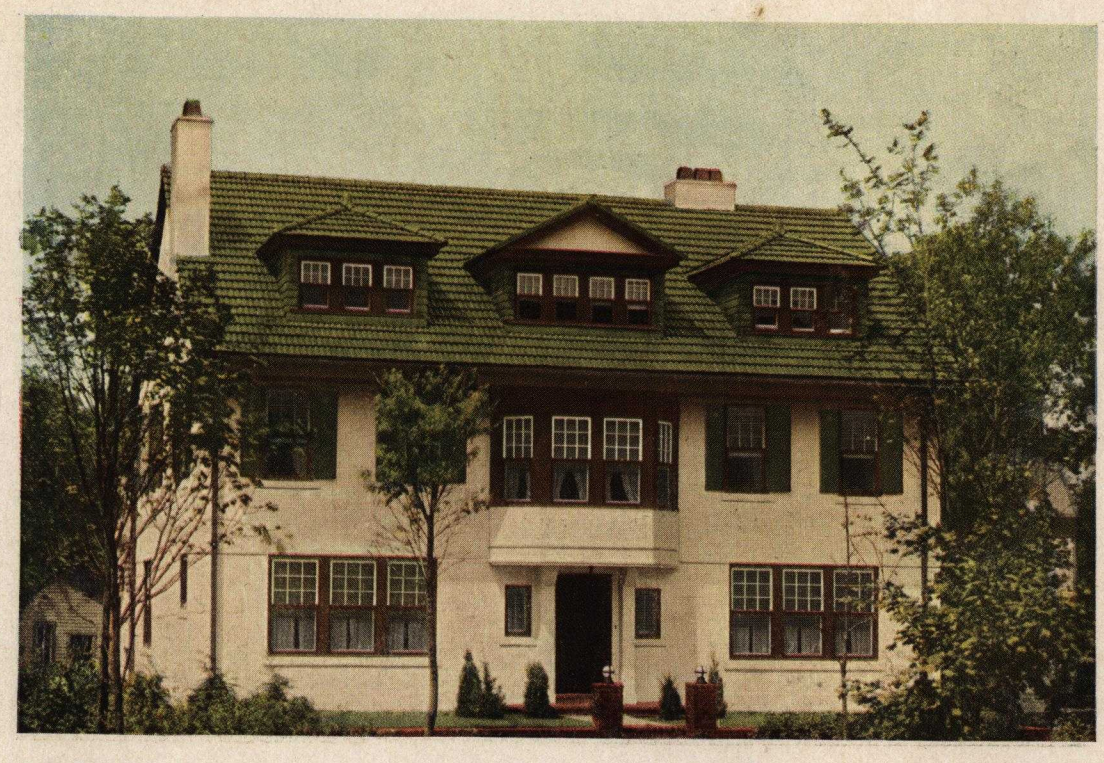


The Finest Private House in Moscow



M. Connable Residence, Toronto, Ont. *Imperial Spanish, Chrome and Victorian Green* *Wickson & Gregg, Toronto, Architects*

F. C. Pitcher Bungalow, Medford, Mass *Imperial Spanish, Red* *C. B. Dunham, Boston, Architect*

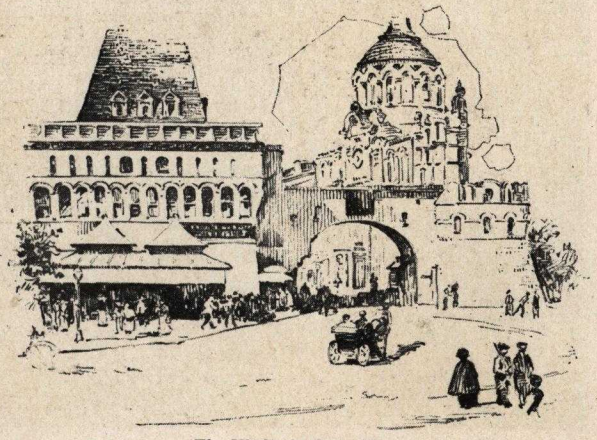


R. L. James Residence, Ben Avon, Pa. *Imperial French, Brookville Green* *E. M. Butz, Pittsburgh, Architect*

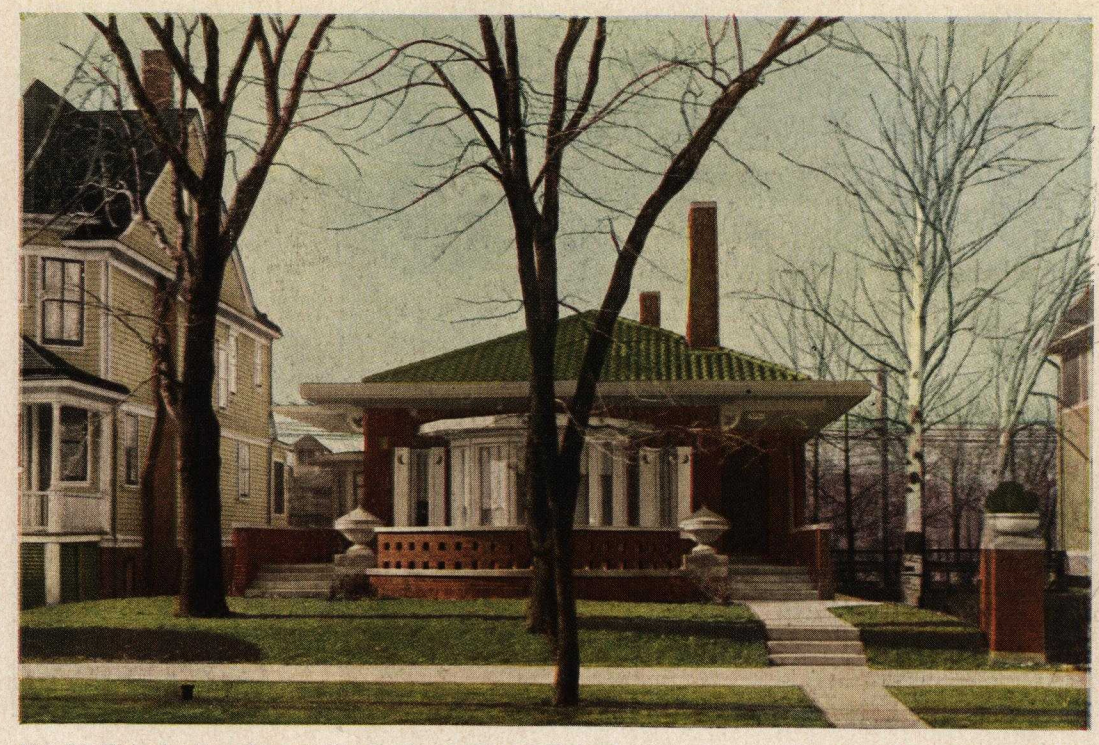
In planning a home, the most vital factor in the safe-guarding of health and comfort—the roof—should have special consideration. For the roof should effectually protect not only those who dwell beneath it, but the house itself and all its contents.

Terra Cotta Tiles for roofing are not only fire-proof, but furnish absolute protection from the elements. They are leak-proof and moisture-proof and being non-conductors of heat and cold, add to comfort and general health. In the hottest summer weather the air in an attic covered by a tile roof is as cool as any other part of the house. The agreeable result thus secured is directly opposite to that from a roof of slates which are the greatest conductors of heat and cold.

A tile roof lasts forever without repairs, does not even require the aid of paint, stain, or other artifice to retain the original shade of the



The Vladimir Gate, Moscow



Mrs. Ida Glahe Residence, Chicago, Ill. *Imperial Spanish, Dull Green* *Thornton A. Herr, Chicago, Architect*

F. J. Tyler Residence, Brookline, Mass. *Imperial French, Red* *Newhall & Blevins, Boston, Architects*

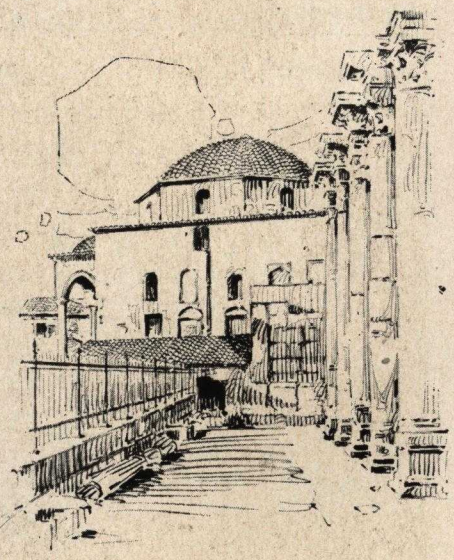
J. A. Todd Residence, Duluth, Minn. Imperial French, Red *P. A. Olsen, Duluth Architect*

tiles. Terra Cotta Tiles defy time. They are permanent themselves and give permanence to the structure which they shelter. They are so laid that the vibration or settlement of a building cannot dislodge them. No moisture can enter under them to rot or rust the wood or other material beneath. No flame can warp, distort or crumble them. Wind and weather leave them unscathed. No extremes of climate can dim their beauty. No change from heat or cold can affect them.

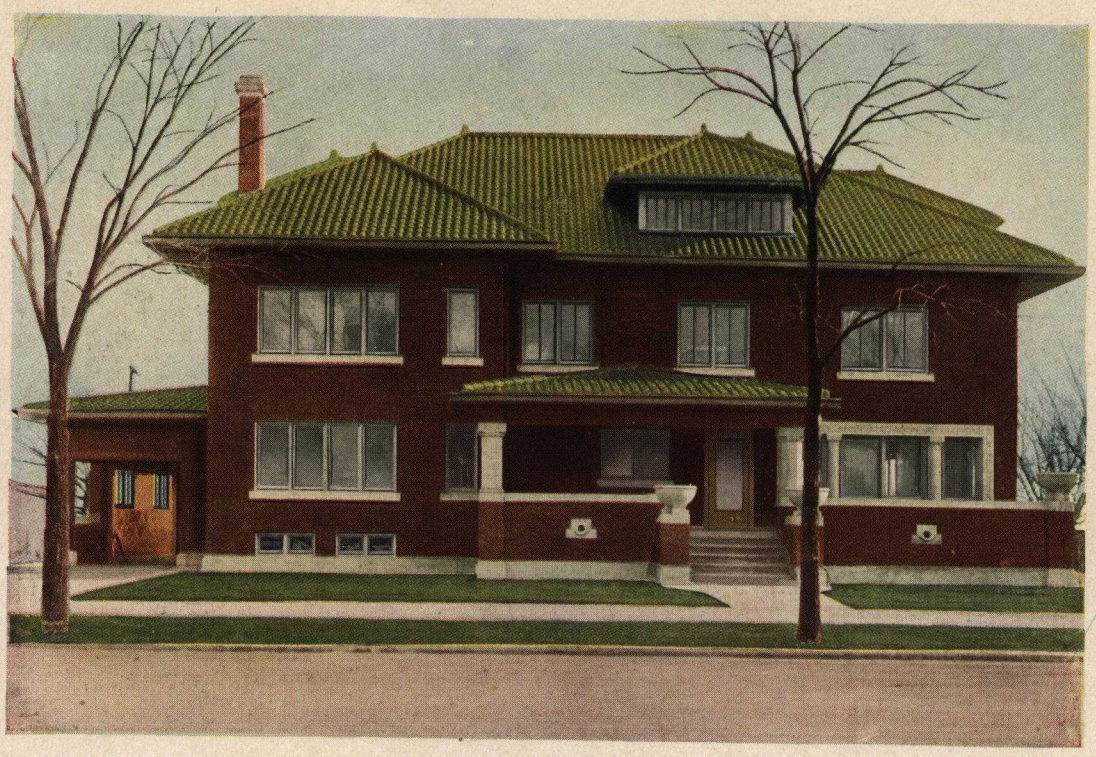
An Everlasting Shelter

They are there to stay, and accomplish the purpose intended, affording protection and safety and adding to the beauty of the building.

The roof is the first essential of a building, the one thing above all which gives it character, emphasis to its beauty, measure to its value. A poor roof makes a cheap-looking house. A beautiful, durable roof adds more real value, more selling value, to a structure than



Byzantine and Roman Ruins



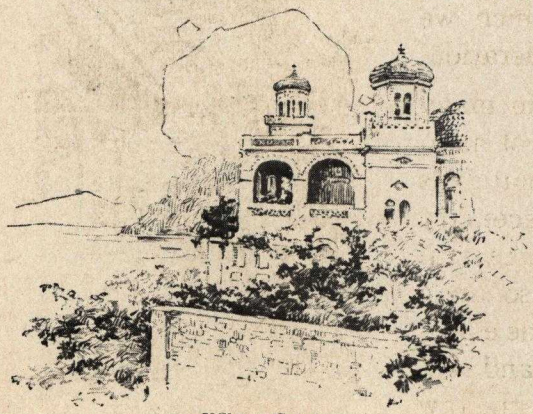
Peter Reinberg Residence, Chicago, Ill. *Imperial Spanish, Brookville Green* *W. L. Klewer & Son, Chicago, Architects*

anything else. A tile roof outlasts the rest of the building; no warped or blown off shingles to replace, no broken slates to repair. It is the only material where the original purchase price covers the cost of a roof, for Tile Roofing is everlasting, and necessary repairs to other materials considered, is really the cheapest in the end.

Eventual Economy

Terra Cotta Roofing Tiles prevent depreciation, a vital point when investment as well as home-building is to be considered.

The cost of a tile roof, to all but a few, was at one time prohibitive, but today such a condition has been happily overcome, due largely to the improved processes of manufacture introduced by the Ludowici-Celadon Company.



Villa at Capri

Anyone building a house, from $8,000 up, can now afford tiles. The relative cost of an everlasting roof, covered with Terra Cotta Tiles, as compared with one of other materials, is about three times the first cost of wood shingles and one and a half times the first cost of slates.

D. W. Ross Residence, Westmount, Quebec. Imperial French, Red *Ross & MacDonald, Montreal, Architects*

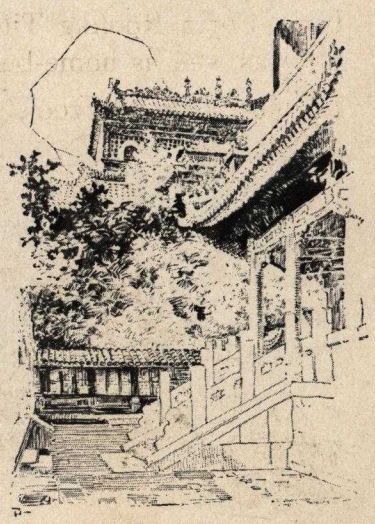
To select a cheaper material is false economy, because the first cost of the tile roof is its last and only cost.

It is a wrong idea that the use of Tile Roofing requires heavier construction than all other materials. In general terms, it can be stated that any form of construction sufficient for a slate roof would properly support Roofing Tiles.

Wooden rafters 2x6-inch sizes, of average length, such as are commonly used for residences, when spaced 18-inch centers, afford ample strength to carry Roofing Tiles. These are facts which we trust will have the reader's careful consideration.

Terra Cotta Tiles of quality are similar in many respects to every other first-grade article of manufacture. The raw materials must contain the necessary properties. Their sucessful production depends also upon proper machinery to develop and perfect the essential features. Nor is this all. Experience and skill in selecting, combining, treating and firing the raw

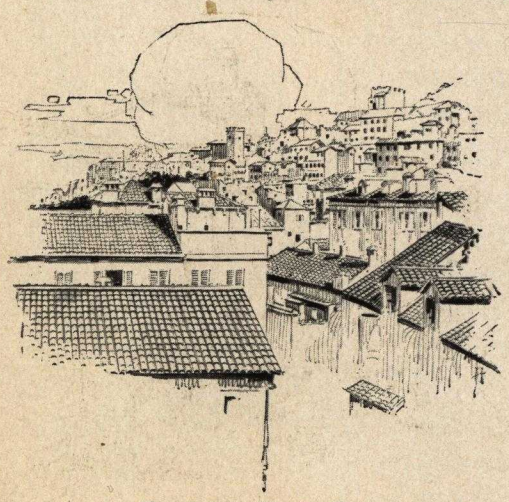
About Our Product



Chinese Tile

Wm. E. Dee Residence, Chicago, Ill. *Imperial French, Brookville Green* *John R. Stone, Chicago, Architect*

material are prime requisites in the production of the highest grade goods. In all these ways is our company especially well supplied. Our operations are conducted where raw material is best and most easily obtained. Our plants are fully equipped with modern machinery of latest pattern. The works are run to their full capacity to meet the constant demand. The result is naturally an immense output.



Housetops in Gibraltar Town

The product of our great plants is of uniform excellence. It represents the perfection of scientific tile-making. Each and every detail is in charge of an experienced artisan. Thus the result always is judicious choice of materials, suitable blending, exact firing, proper enameling or glazing —the essentials in tiles of quality.

That is the reason we put our imprint on the inner side of every piece of our tile; why we are thus willing to guarantee our product by putting our name and reputation behind it.

Robertson MacCauley Residence, Montreal, Quebec. Imperial French, Red *Robert Findlay, Montreal, Architect*

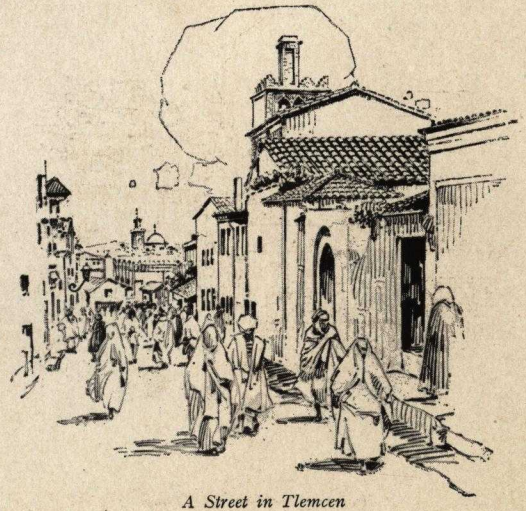
Roofing Tiles are produced at our plants in a number of styles. These may differ in color and shade as well as pattern. They include also various interlocking devices, such as tongue-and-groove lock, lip-and-lap lock and others. The standard color of roofing tiles is red, but we make them in almost every color and shade. Thus our tiles render wonderful assistance to color schemes in building.

Designs and Colors

Following is a description of some of our leading patterns. They are those which we produce most largely.

This pattern—the Imperial Closed Shingle—is most frequently used to carry out the idea of the Colonial and Early English styles of architecture. The tile has the tongue-and-groove lock and is far superior to the flat shingle in actual strength. In depth of reveal it accentuates the

The Imperial Closed Shingle



A Street in Tlemcen

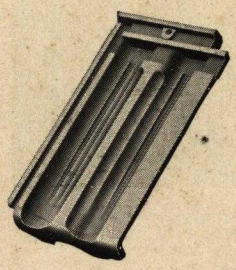
horizontal line and gets away from the monotonous effect of the flat shingle.

This tile is Imperial indeed—attractive, classy, distinctive—adapted to those designs which are formed in the style of Southern Europe.

The Imperial Spanish

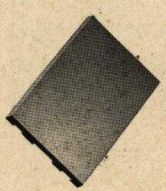
These are, in the main, hipped roofs, and may be massive and monumental buildings of classical form, or the humbler bungalow in which the romantic and picturesque effects are sought. The tiles are formed with a lip-and-lap lock, so designed as to give ample weather-proof guards, and, in the play of light and shadow and the general contour of the tile, are especially pleasing to the eye. The Hip Roll and Ridge are so designed as to be in harmony with the roll or barrel of this pattern.

This shape of tile is sometimes called an all-around tile, as it may be used with any design, whether Romanesque, Georgian, Gothic, Early English or others. It has the tongue-and-groove lock, and the general effect is flat, although there are such convolutions in the surface as to afford a considerable play of light and shadow. This tile is very commonly used on large roof expanses, such as school buildings, church buildings, court houses and municipal buildings. It is, however, extensively used as a suitable tile for residences and apartment buildings.



The Imperial French

Tile slabs are designed for flat roofs, in 6x9x1-inch and 6x6x1-inch sizes. The Federal Government was perhaps the first in this country to recognize the value of this material and following its initiative the tile slabs are in use on school buildings, railway stations, municipal and state buildings, office buildings, college buildings and libraries where the roofs are flat and a fireproof, sanitary, cleanly roofing is required.



Tile Slabs